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ABSTRACT

This book is one of a series of five providing a description of the Hewlett-Packard Mathematics Drill and Practice Program for the computer. Complete operating procedures for the program are given. Contents include: (1) introduction; (2) things to know before operating the system; (3) creating records and files; (4) daily tasks; (5) occasional tasks; (6) startup of the system from a magnetic tape system copy; (7) daily tasks checklist - sleep, reset, and restart; (8) opening and expanding files; (9) how to obtain program reports; (10) form for recording registers; and (11) sample logbook form. (MP)

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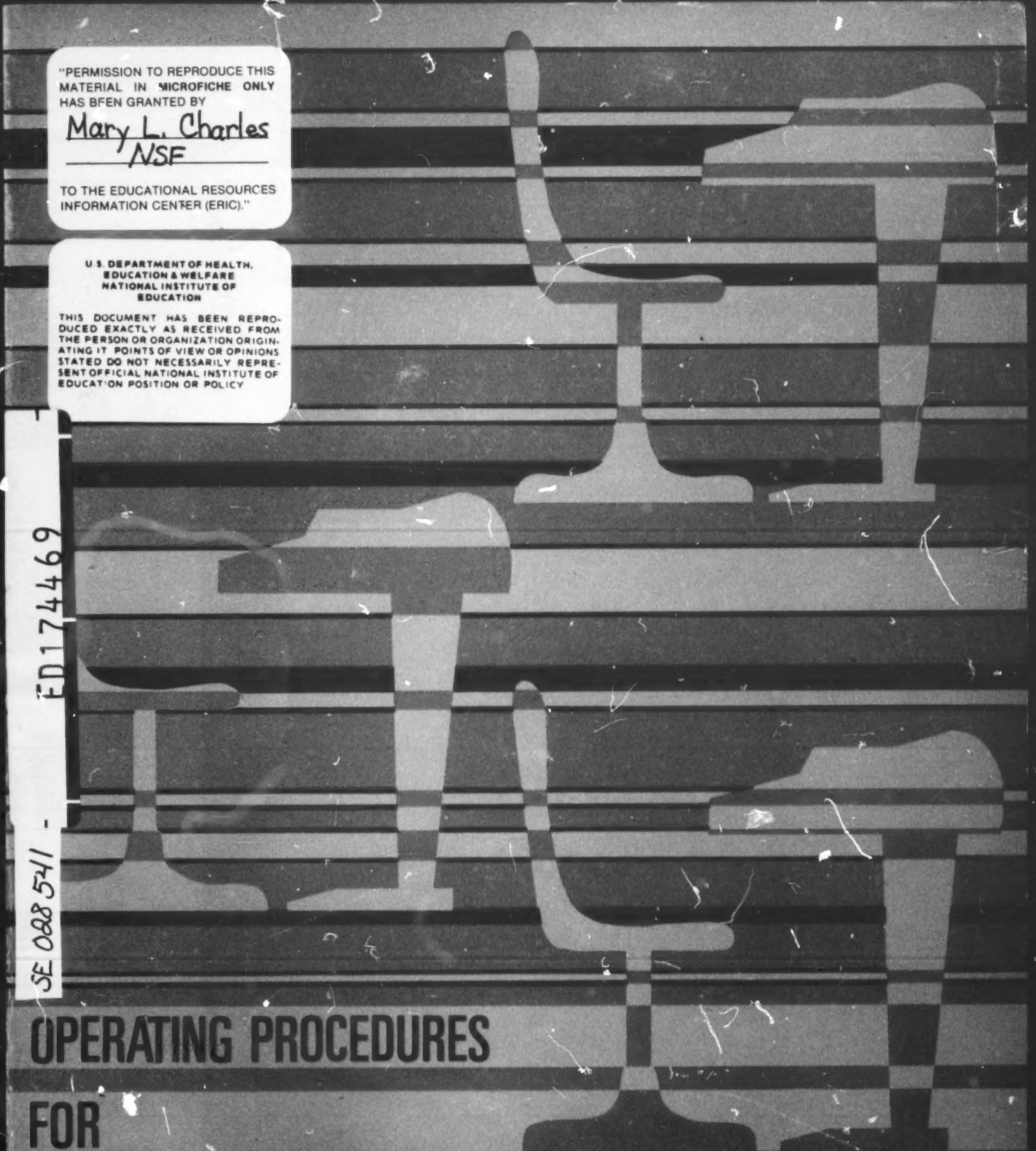

OPERATING PROCEDURES FOR HP MATHEMATICS DRILL AND PRACTICE PROGRAM

OPERATING PROCEDURES

FOR

HP MATHEMATICS DRILL AND PRACTICE PROGRAM

HEWLETT hp PACKARD

11000 Wolfe Road
Cupertino, California 95014

HP 5950-9294

August 1970

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HP acknowledges the editorial assistance of Robert M. Gordon, University of California Irvine, California.

PREFACE

This book is one of a series of five, providing information on a description of the Hewlett-Packard Mathematics Drill and Practice Program. Others in the series are:

INTRODUCTION TO HP MATHEMATICS DRILL AND PRACTICE PROGRAM
TEACHER'S HANDBOOK FOR HP MATHEMATICS DRILL AND PRACTICE PROGRAM
PROCTOR'S HANDBOOK FOR HP MATHEMATICS DRILL AND PRACTICE PROGRAM
CURRICULUM GUIDE FOR HP MATHEMATICS DRILL AND PRACTICE PROGRAM

This book gives complete operating procedures for the D & P PROGRAM. Also included are certain operating procedures for the HP 2000B time sharing system. For complete 2000B operating procedures, see the HP 2000B *Time Shared BASIC System Operator's Guide*. (HP 02000-9009).

For further information on BASIC language programming for the 2000B, see the HP 2000B version of *A Guide To Time Shared BASIC*. (HP 02000-90010.)

HOW TO USE THIS BOOK

This book is divided into sections, according to purpose.
Each Section contains one or more procedures, which are parts of a task the operator wants to perform. Procedure 1 (Section III), for example, is "Change The Operator's (A000) Password."

Each procedure contains a number of steps. A step is a single operating instruction. Steps are presented in a numbered sequence. For example:

:

21. Press the LOAD ADDRESS button on the 2116.
22. Press the RUN button on the 2116.

:

42. DISC MODIFICATIONS? NO *return*

Each step may be either a sentence, or something to be typed in at the operator's terminal. Items to be typed by the operator are shown in blue; computer responses in black. The sequence of steps given above shows the computer query: "DISC MODIFICATIONS?" Since the query itself is produced by the computer, it is shown in black; the appropriate action for step 42 (above, in blue) is typing NO *return*.

The Appendices contain abbreviated check lists of routine procedures for experienced operators.

CONVENTIONS IN THIS TEXT

SAMPLE	EXPLANATION
DONE	Black, all capitals in examples indicates computer-output information.
And then...	Mixed upper and lower case black is used for regular text.
2Ø PRINT X,Y	Blue, all capitals indicates something typed by the operator.
IDcode, password return	Blue lower case italics indicates something that must be typed into the computer. Blue underlining indicates essential information; each underlined item is a separate, essential element.
return linefeed esc ctrl alt-mode	Represents the terminal keys: Return, Linefeed, Escape, Control, and Alt-Mode.
NOTE: Both X and...	Mixed upper and lower case italics is used for notes.

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SECTION I

INTRODUCTION

The HP MATHEMATICS DRILL AND PRACTICE PROGRAM (D&P PROGRAM) is separate from the computer system. The D&P PROGRAM must be loaded into the computer before it can be used. A copy of the D&P PROGRAM is provided on magnetic tape with the computer system. Complete instructions for loading of the D&P PROGRAM into the computer are contained in Appendix A of this book.

THE COMPUTER SYSTEM

The computer system consists of several pieces of equipment. The operator should be familiar with the purpose of each device. No formal training program is necessary to follow the operating instructions for the D&P PROGRAM, and the operating procedures are self explanatory. The list below gives a brief explanation of the purpose of each device in the computer system.

The equipment cabinet is the large metal cabinet containing the computer system.

There are two computers inside the equipment cabinet. The main computer is an HP 2116 (the one with five rows of lights on the front panel). The 2116 computer does the information processing for the D&P PROGRAM.

The smaller computer, the HP 2114, handles the communication between the main computer and the 32 terminals of the computer system (the 2114 has two rows of lights on its front panel).

The digital tape unit is used for making copies of all the programs and information contained in the computer system. Programs may also be loaded from the digital tape unit into the computer. The computer can read programs stored on magnetic tape or make copies of programs stored in the computer on magnetic tape; the digital tape unit is controlled by the computer.

The photoreader or high speed TAPE READER is the device with the metal and rubber rollers. The photoreader is used only for loading information into the computer; it cannot make copies of programs stored in the computer system.

The system operator's terminal is the large typewriter-like console near the computer. It is used to give certain operator's commands to the computer system.

Student terminals are smaller typewriter-like devices. These terminals are used by students to communicate with the computer in the mathematics drill and practice program. These terminals may also be used to write programs for the computer in the BASIC language.

The power supply (labeled power supply) supplies electrical power to all the equipment in the computer system except the student terminals. There may be one or several power supplies in cabinet.

The disc or drum is used for storing programs and information outside of the computer (labeled "disc memory" or "drum memory").

THE OPERATOR'S JOB

The operator has several tasks, outlined below, in terms of keeping the computer system and the D&P PROGRAM running smoothly.

1. Assigning *IDcodes* and *passwords* - done at initial startup and occasionally thereafter.
2. Initial startup of a school on the computer system. Done once for each school using the D&P PROGRAM.
3. Making system copies on magnetic tape, resetting time clocks (RESET), and restarting the system - done daily.
4. Adding programs to the public library - done infrequently.
5. Note down trouble symptoms and restarting the system if something goes wrong - infrequently.

See Section II for further details of the operator's job.

SECTION II

THINGS TO KNOW BEFORE OPERATING THE SYSTEM

1. KEEP A LOGBOOK

The operator has many details to remember about the computer system. Since the operator is the one who changes passwords, codewords, and assigns ID codes, he should keep a notebook (called a "logbook") for information about the system. (See Appendix "F" for a sample logbook form.)

The logbook should contain a list of *IDcodes*, *passwords*, and the names of the persons who use each *IDcode*. If people access the computer from remote locations, keep a record of their telephone numbers -- it may be necessary to contact remote users if the system is to be shut down early or unexpectedly.

Be sure to keep careful records of *IDcode*, *password* and *codeword* changes; also record the dates when these changes are made.

The system logbook should contain enough information to allow a substitute operator to keep things running smoothly. Keep the book in a safe place -- if it is lost or stolen, you may have to change all the passwords and code-words on the system!

2. USE A PATTERN WHEN ASSIGNING *IDcodes*

There are several "special" ID codes on the time sharing system, which should be assigned in special cases:

A000	System Operator Only
A001-A999	D&P - Schools Only
Any letter any number 00	Reserved For Future Application
Z999	Reserved For Future Application

Use a pattern for assigning ID codes to people who will use the system for programming. For example, assign ID codes beginning with "B" to individuals

in one school, "C" to another school. *IDcodes* can be assigned in such a manner that a user can be identified by his *IDcode*. For example, if the first letter indicates a school, and the numbers 101-199 are used for teachers, with numbers above 200 for students, you can determine which school is using the system, and whether it is a teacher or student who is using the terminal.

The REPORT* command (given from the operator's terminal) produces a list of all user *IDcodes* and the time and storage used by each. Do not forget to write the name, telephone number, *IDcode* and *password* for all system users in the logbook. Be sure to update the log when you make changes. Users sometimes forget their passwords, and will rely on the operator to keep records. (Caution: If you are asked to give a *codeword* or *password* over the telephone, make sure the person who is calling is authorized to use it.)

**See the HP 2000B Time Shared BASIC System Operator's Guide (HP 02000-90007) for further information on these and other system commands.*

3. ALWAYS KEEP AT LEAST ONE SYSTEM COPY ON MAGNETIC TAPE

Both people and computers make mistakes. To insure smooth running of the D&P PROGRAM, make a system copy on magnetic tape every day, and keep it until the next system copy is made. The safest way to do this is keeping at least two magnetic tapes in the computer room. Make a system copy on tape #1 on one day, then the following day make a copy on tape #2. Then, the next day make a copy on tape #1. If this routine is followed, you will always have two recent system copies available.

Always label tapes with the date and time when making a system copy. Keep a supply of self-adhesive labels in the computer room, and put the label on the tape case immediately after making the system copy. Opening tape cases one at a time and labeling tapes properly can save much time and trouble for the operator. The computer will not complain if last week's system copy is loaded accidentally, but several hundred students and teachers could be inconvenienced by a mistake of this type.

***A word of caution:** Magnetic tapes are easily ruined by dust, or even such things as donut crumbs. Never touch more than the first one or two feet of tape when handling a reel of magnetic tape and always keep tapes in their cases, with covers closed.*

4. HANDLING PAPER TAPE

Paper tape (or Mylar Tape) is more "fragile" than magnetic tape. Operators may occasionally load programs on paper tape into the computer through the photoreader, or a terminal tape reader. There is only one general rule for using paper tape: handle with care.

When loading from paper tape, make sure that the tape is inserted correctly. Paper tape will not feed properly when reversed, but it will load if it is inserted upside-down-and-backwards. When a tape is loaded backwards, neither the program nor the computer will run properly. To correct this situation, simply reload the tape properly. (Printed side up, arrows pointing to the right, as you face the computer.)

Rewind paper tapes and put back in the box as soon as you have finished using them. Make sure the label is on the outer edge of the roll after rewinding, so the next person to use the tape will load it correctly.

Stepping on paper tapes usually ruins them.

Tears in paper tape are difficult to repair, and may cause errors.

5. PUT FREQUENTLY USED PROGRAMS IN THE PUBLIC LIBRARY

If several schools or users keep copies of the same program in their private libraries, you can save storage space by putting a copy in the public library.

To put a program in the public library, log in at any student terminal with a tape reader, under *IDcode* A000, insert the tape in the reader, give the TAPE command (tape is read), give the KEY command, then NAME and SAVE the program. For example:

1. HELLO-A000, *password return*
   READY
2. TAPE *return*
3. (Insert tape in reader and turn reader on. Tape is read.)
4. KEY *return*
5. NAME-*program name return*
6. SAVE *return*

6. THE UTILITY ROUTINES

The D&P PROGRAM has eighteen utility routines. The table below lists the routines by name and purpose. All of these routines are contained in the public library of the time sharing system, and can be accessed from any school *IDcode*.

Routine Name	Purpose
$CHANGE	Changes items in a student's record; operator specifies student's ID number and item(s) to be changed.
$CLASS	Produces a class report.
$CLEARB	Sets the blocks completed count for all students to zero.
$CLEARC	Clears the curriculum files (a file of statistical records.)
$CLEARS	Initializes newly opened student files; run after files are opened under a school's *IDcode*.
$CODE	Sets the *codeword* required to access D&P PROGRAM routines. Each school has a different *codeword*.
$CURRIC	Produces a curriculum report.
$DAILY	Produces a daily report.
$DATE	Changes the date in the D&P PROGRAM (run daily).
$DELETE	Removes a student's name and records from the PROGRAM.
$ID	Shows the next available student ID number.
$NEW	Used to enter new students into the PROGRAM.
$PUPIL	Produces an individual report for a student.
$ROSTER	Produces listings of classes.
$SCHOOL	Adds or changes a school name.
$START	Used to start the PROGRAM at a student terminal.
$TEACHR	Used to ENTER, REMOVE, or LIST teacher names.
$TEST	Runs a listing of the lesson specified.

7. WHAT TO DO IF THE COMPUTER SYSTEM STOPS

If the computer stops during time sharing operations, first check the power source to make sure that the building's power has not failed. If there has been a general power failure, the computer system will restart itself when the power is restarted.

If the lights on the front panel of either computer indicate HALT, first write down the contents of all of the registers and indicator lights (see the form in Appendix "E" for an example), then attempt to restart the computer. (*See Section IV.*) If it will not restart, or errors continue, call the nearest HP Sales and Service Office.

SECTION III

CREATING RECORDS AND FILES

INTRODUCTION

Each school IDcode must have 11 files. The file names are: 1,2,3,4,5,6,7,8, 9,10 and C. These files contain administrative information, such as the school *codeword*, school name, teacher's names, and records for all students in the school.

Several schools can operate independently on the same computer system. To add another school, repeat the procedures given in this section, using a different *IDcode*.

This section contains procedures for opening the files, putting school information in them, and changing information in the school's files.

PROCEDURE 1: CHANGE THE OPERATOR'S (A000) PASSWORD

NOTES: The examples below show how to change the A000 (operator's) password. This is done to insure privacy for the D&P programs and files.)

The italicized, underlined word password indicates a 1 to 6 character "word" supplied by the operator. It is suggested that one or more of the characters be non-printing control characters. (Press the ctrl key simultaneously with the letter of character desired.)

The operator's password should be changed periodically.

1. Turn the operator's terminal switch to the ON LINE position.
2. CHANGE-A000, *password return*
3. The *password* you just entered is necessary for the operator to log in at any of the student terminals. Don't forget it!

CHANGE-A000,SCHOOL

PROCEDURE 2: ADD AN *IDcode* FOR THE SCHOOL

1. Make sure the Operator's Terminal is ON LINE.
2. NEWID-*IDcode*, *password*, 65535, 65535 *return*

IDcode is the letter "A" followed by a 3 digit number from 001 to 999 inclusive.

password is a series of up to six characters; use at least one non-printing control character (press the ctrl key and character at the same time.)

The two 65535's indicate maximum time and storage limits for the IDcode.

linefeed (Computer response to NEWID command.)

Note the IDcode and password in the logbook.

NEWID-A001,SECRET,65535,65535

PROCEDURE 3: OPEN FILES FOR THE SCHOOL UNDER THE SCHOOL *IDcode*

Each school using the PROGRAM must have its own series of eleven files, opened under the school *IDcode*.

If the school has less than 1261 students, see Appendix "C" for formulas to determine file sizes, and for instructions on expanding school files.

To open the school files:

1. Log in at any student terminal, using the school *IDcode*, then:
2. OPEN-1,128 *return*
3. OPEN-2,128 *return*
4. OPEN-3,128 *return*
5. OPEN-4,128 *return*
6. OPEN-5,128 *return*
7. OPEN-6,128 *return*
8. OPEN-7,128 *return*
9. OPEN-8,128 *return*
10. OPEN-9,128 *return*
11. OPEN-10,128 *return*
12. OPEN-C,84 *return*

```
OPEN-1,128
OPEN-2,128
OPEN-3,128
OPEN-4,128
OPEN-5,128
OPEN-6,128
OPEN-7,128
OPEN-8,128
OPEN-9,128
OPEN-10,128
OPEN-C,84
```

PROCEDURE 4: SET THE SCHOOL *codeword*

NOTES: The codeword is one to five characters supplied by the operator. It is recommended that at least one non-printing control character be included in the codeword (press the ctrl key and any character simultaneously.)

1. While logged in under the *IDcode* for the appropriate school at any student terminal, type:
2. GET-$CODE *return*
3. RUN *return*
   CODE
4. ? $R^C U^C N^C$ *return* *(RUN in control characters is the permanent keyword for running the CODE routine.)*
5. CODE? *type in the new codeword of 1 to 5 characters return*
6. The *codeword* you just typed in is necessary for operators and proctors to use certain D&P routines. Tell the proctor what the new *codeword* is each time it is changed.

```
GET-$CODE
RUN
CODE

?
CODE? HUSH

DONE
```

PROCEDURE 5: INITIALIZE THE SCHOOL RECORDS

The school records (contained in the files 1-10) must be prepared for the PROGRAM by a routine called CLEARS.

NOTES: The CLEARS routine must also be run after expanding the files (See Appendix "D".)

While logged in under the *IDcode* for the appropriate school at any student terminal, type:

1. GET-$CLEARS *return*
2. RUN *return*
   CLEARS
3. CODE? *type in codeword return*
   number STUDENT RECORDS ARE ALREADY IN THE COMPUTER.
   AN ADDITIONAL *number* STUDENTS MAY BE LOADED.
   THE ID RANGE IS *number* - *number*
   DONE

```
GET-$CLEARS
RUN
CLEARS

CODE?HUSH
 0    STUDENT RECORDS ARE ALREADY IN THE COMPUTER.
AN ADDITIONAL 1261    STUDENTS MAY BE LOADED.
THE ID RANGE IS 1000 - 2260

DONE
```

PROCEDURE 6: CLEAR THE CURRICULUM FILE

The D&P PROGRAM keeps a file of statistics on student performance. This file must be cleared when first starting a school on the system.

To clear the curriculum file:

1. While logged in under the *IDcode* of the appropriate school, at any student terminal, type:
2. GET-$CLEARC *return*
3. RUN *return*
   CLEARC
4. CODE? *type codeword return*
   THIS PROGRAM CLEARS ALL INFORMATION FROM THE CURRICULUM FILE.
5. REGULAR OR SPECIAL? *type REGULAR or SPECIAL return*
   THE CURRICULUM FILE FOR THE REGULAR STUDENTS OF *school name* SCHOOL HAS BEEN CLEARED.
   DONE
6. Repeat the above procedure for "SPECIAL" students.

NOTE: The school may wish to periodically (at the end of each school year, for instance) clear the curriculum file for regular and/or special students. If so, be sure to run a Curriculum Report before clearing the file.

```
GET-$CLEARC
RUN
CLEARC

CODE? HUSH
THIS PROGRAM CLEARS ALL INFORMATION FROM THE CURRICULUM FILE.
REGULAR OR SPECIAL? REGULAR
THE CURRICULUM FILE FOR THE REGULAR STUDENTS OF HILLSDALE  SCHOOL
HAS BEEN CLEARED.

DONE
RUN
CLEARC

CODE? HUSH
THIS PROGRAM CLEARS ALL INFORMATION FROM THE CURRICULUM FILE.
REGULAR OR SPECIAL? SPECIAL
THE CURRICULUM FILE FOR THE SPECIAL STUDENTS OF HILLSDALE  SCHOOL
HAS BEEN CLEARED.

DONE
```

PROCEDURE 7: PUT THE SCHOOL NAME INTO THE PROGRAM

The school's name must be entered into the PROGRAM with the SCHOOL routine:

1. While logged in under the *IDcode* for the appropriate school at any student terminal, type:
2. GET-$SCHOOL *return*
3. RUN *return*
   SCHOOL
4. CODE? *type in the codeword return*
5. SCHOOL NAME? *type in the school name (maximum 20 characters) return*
   DONE

```
GET-$SCHOOL
RUN
SCHOOL

CODE? HUSH
SCHOOL NAME? HILLSDALE

DONE
```

PROCEDURE 8: PUT THE TEACHERS' NAMES INTO THE PROGRAM

Each school using the D&P PROGRAM has space for 64 teachers. Each teacher is assigned a Number by the operator (1 to 64). The operator must also indicate a grade for each teacher.

The following three pages show examples of entering, removing, and listing teacher's names, using the TEACHR routine.

To use the TEACHR routine:

1. While logged in under the *IDcode* for the appropriate school, at any student terminal, type:
2. GET-$TEACHR *(Note that it is spelled TEACHR, not teacher.)*
3. RUN
   TEACHR
4. CODE? *type in the codeword return*
5. DO YOU WANT TO ENTER, REMOVE, OR LIST TEACHER NAMES? *ENTER or REMOVE or LIST return*
   (Computer responds with appropriate action.)

```
GET-$TEACHR
RUN
TEACHR

CODE?HUSH
DO YOU WANT TO ENTER, REMOVE, OR LIST TEACHER NAMES?ENTER

TEACHER NUMBER?1
TEACHER NAME?MISS BOTTOMLEY
TEACHER GRADE?1

TEACHER NUMBER?2
TEACHER NAME?MRS. HOLLINGER
TEACHER GRADE?2

TEACHER NUMBER?3
TEACHER NAME?MRS. WILLIAMS
TEACHER GRADE?3

TEACHER NUMBER?4
TEACHER NAME?MISS HALLADAY
TEACHER GRADE?4

TEACHER NUMBER?5
TEACHER NAME?MISS JOHNSON
TEACHER GRADE?5

TEACHER NUMBER?6
TEACHER NAME?MR. SANCHEZ
TEACHER GRADE?6

TEACHER NUMBER?7
TEACHER NAME?MR. BAKER
TEACHER GRADE?6

TEACHER NUMBER?0  (Typing zero stops the routine.)

DONE
```

```
GET-STEACHR
RUN
TEACHR

CODE?HUSH
DO YOU WANT TO ENTER, REMOVE, OR LIST TEACHER NAMES?LIST
```

TEACHER LIST FOR HILLSDALE SCHOOL

NO.	NAME	GRADE
1	MISS BOTTOMLEY	1
2	MRS. HOLLINGER	2
3	MRS. WILLIAMS	3
4	MISS HALLADAY	4
5	MISS JOHNSON	5
6	MR. SANCHEZ	6
7	MR. BAKER	6

```
DONE
```

```
GET-$TEACHR
RUN
TEACHR

CODE?HUSH
DO YOU WANT TO ENTER, REMOVE, OR LIST TEACHER NAMES?REMOVE

TEACHER NUMBER?7

TEACHER NUMBER?0   (Typing zero stops the routine.)

DONE
```

PROCEDURE 9: PUT STUDENT NAMES INTO THE PROGRAM

Each student record contains this information:

ID number
First name
Last name
Sex
Type (regular or special)
Teacher Number
Grade
Skip option
Pace (fixed or self)
Time out factor
Time interval

New student names are added to the PROGRAM with the NEW routine. The examples on the next page show a variety of responses to questions asked by NEW.

Some information is automatically entered into a student's record by the NEW routine. Each student is automatically entered as a regular student, self-paced, unlimited time interval at the terminal, and with the skipping option set to "yes". Use the CHANGE routine (procedure 9) to change any of the information which is entered by NEW. Use the DELETE routine (Procedure 11) to delete a student's name and records from the PROGRAM.

```
GET-$NEW
RUN
NEW

CODE?HUSH

NEW ID?1000
FIRST NAME?JANE
LAST NAME?SMITH
MALE OR FEMALE?F
TEACHER #?1
GRADE?1
START MAIN LESSON:
YEAR?1
BLOCK?1
TIME-OUT FACTOR?31
JANE SMITH ENTERED.

NEW ID?1001
FIRST NAME?WILLIAM
LAST NAME?WHITE
MALE OR FEMALE?MALE
TEACHER #?2
GRADE?2
START MAIN LESSON:
YEAR?2
BLOCK?2
TIME-OUT FACTOR?31
WILLIAM WHITE ENTERED.

NEW ID?1003
FIRST NAME?ALBERTA
LAST NAME?JORGENSON
MALE OR FEMALE?F
TEACHER #?3
GRADE?3
START MAIN LESSON:
YEAR?3
BLOCK?1
TIME-OUT FACTOR?25
ALBERTA JORGENSON ENTERED.

NEW ID?1004
FIRST NAME?MARY JANE
LAST NAME?KROSNICK
MALE OR FEMALE?F
TEACHER #?4
GRADE?4
START MAIN LESSON:
YEAR?4
BLOCK?1
TIME-OUT FACTOR?20
MARY JANE KROSNICK ENTERED.

NEW ID?0  (Typing zero stops the routine.)

DONE
```

PROCEDURE 10: CHANGING INFORMATION IN STUDENT RECORDS

The CHANGE routine is used to change information in student records.

The examples on the next page show possible responses to the question CHANGE? asked by the CHANGE routine. The general form for inserting change is:

CHANGE? *keyword* - *new information* *return*

IF YOU WANT TO CHANGE STUDENT'S	THE *keyword* IS:	AND VALID *new information* IS:
ID number	ID-	Any ID Number not yet assigned, and within the limits of the PROGRAM.
Name	NAME-	Last name, followed by a comma, then first name (20 characters maximum for each name.)
Type (Regular or Special)	TYPE-	R or S (or type out REGULAR or SPECIAL).
Teacher	TEACHER-	1 to 64 (Teacher's number)
Grade	GRADE-	0 to 15
Sex	SEX-	M or F (or type out MALE or FEMALE)
Lesson	LESSON-	The year (1 to 6), followed by a comma, then the block (1 to 24).
Time-out factor	TIME-	0 to 31 (seconds)
Skip option	SKIP-	Y or N (or type out YES or NO). If Y, the student must be self-paced.
Pace	PACE-	F or S (or type out FIXED or SELF). If F, student must have unlimited time interval and no skipping.
Time interval	INTERVAL-	1 to 31 (minutes), or U (unlimited). Student must be self-paced if less than unlimited interval is specified.

```
GET-$CHANGE
RUN
CHANGE

CODE?HUSH

THIS PROGRAM CHANGES STUDENT RECORDS.

ID #?1003
ALBERTA JORGENSON
CHANGE?ID-1005
OLD ID: 1003
NEW ID: 1005

ID #?1005
ALBERTA JORGENSON
CHANGE?NAME-JORGENSEN, ALBERTA
OLD NAME: JORGENSON, ALBERTA
NEW NAME: JORGENSEN, ALBERTA

ID #?1005
ALBERTA JORGENSEN
CHANGE?TYPE-S
OLD TYPE: REGULAR
NEW TYPE: SPECIAL

ID #?1005
ALBERTA JORGENSEN
CHANGE?TEACHER-4
OLD TEACHER: MRS. WILLIAMS
NEW TEACHER: MISS HALLADAY

ID #?1005
ALBERTA JORGENSEN
CHANGE?GRADE-4
OLD GRADE: 3
NEW GRADE: 4

ID #?1005
ALBERTA JORGENSEN
CHANGE?LESSON-4,1
OLD YEAR, BLOCK: 3, 1
NEW YEAR, BLOCK: 4, 1

ID #?1005
ALBERTA JORGENSEN
CHANGE?TIME-15
OLD TIME-OUT FACTOR: 25 SECONDS
NEW TIME-OUT FACTOR: 15 SECONDS

ID #?1005
ALBERTA JORGENSEN
CHANGE?SKIP-NO
OLD SKIP OPTION: YES
NEW SKIP OPTION: NO

ID #?1005
ALBERTA JORGENSEN
CHANGE?PACE-FIXED
OLD PACE: SELF
NEW PACE: FIXED
ID #?0   (Typing zero stops the routine.)
DONE
```

PROCEDURE 11: DELETING STUDENT RECORDS

The DELETE routine deletes a student's name and records from the D&P PROGRAM.

To delete a student's record:

1. While logged in under the *IDcode* for the appropriate school at any student terminal, type:
2. GET-$DELETE *return*
3. RUN *return*
   DELETE
4. CODE? *type in the codeword return*
   THIS PROGRAM DELETES STUDENT RECORDS
5. ID#? *type in ID number of student to be deleted return*
   computer types the student's name
6. VERIFY TO REMOVE, YES OR NO? *type YES or NO return*
   student name HAS BEEN REMOVED
7. ID#? 0 *return* *(Typing an ID number of zero stops the routine.)*
   DONE

```
GET-$DELETE
RUN
DELETE

CODE? HUSH

THIS PROGRAM DELETES STUDENT RECORDS.

ID #? 1004
MARY JANE KROSNICK
VERIFY TO REMOVE, YES OR NO? YES
MARY JANE KROSNICK HAS BEEN REMOVED.

ID #? 0 (Typing zero stops the routine.)

DONE
```

SECTION IV

DAILY TASKS

SYSTEM COPY AND SHUTDOWN

A system copy should always be made on magnetic tape before shutting down the system. The easiest "shutdown" procedure is to leave the system running, as described below. Whether or not the power is shut off, a system copy should be made on magnetic tape at the end of each day. See Section II for helpful hints on handling magnetic tapes, and tape rotation.

Note that the SLEEP procedure (making a system copy on magnetic tape) causes all student terminals to be logged out. This means that anyone using the system will have to log in again after the system is restarted; any computing in process is ended by the SLEEP command. Operators of systems with remote terminals should first give the ROSTER command (ROSTER *return* on the operator's terminal) before giving the SLEEP command. The ROSTER command prints a list of *IDcodes* presently logged in. If someone is using the system, look up his *IDcode* and phone number in the logbook, and, if possible, call him to inform him that the system will be taken out of service for a few minutes.

To make a system copy:

1. Mount a Magnetic Tape (See Appendix "A" Procedure 1 for step-by-step instructions.)
2. Make sure switch 0 on the 2116 SWITCH REGISTER is down.
3. With the operator's terminal "ON LINE," type:
   SLEEP *return*
   All terminals are logged off, and a system copy is made on the magnetic tape.
4. VERIFY? YES *return*
   To make a second copy, mount another tape, and press RUN on the 2116.
5. Label the system copy with the date and time it was made.

5. Set the 2116 SWITCH REGISTER to 077760_8 (switches 14,13,12,11,10,9,8,7, 6,5,4 up, all others down).

6. Press LOAD ADDRESS on the 2116.

7. Set the 2116 LOADER switch to ENABLED.

8. Press PRESET on the 2116.

9. Press RUN on the 2116.

10. When the computer halts, check the (2116) T-REGISTER for 102077_8 (lights 15,10,5,4,3,2,1,0 on). If 102077_8 is not in the T-REGISTER, begin again at step 5. After two unsuccessful tries, follow the reloading instructions in Appendix "A" (Procedures 1-3).

11. Set the (2116) LOADER switch to PROTECTED.

12. Press RUN on the 2116.

13. DATE? *day of year (1 to 366) / year of century (00 to 99) return*
    Example: *Feb. 6, 1971 is 37/71*

14. TIME? *four digit time on 24 hour clock return*
    Example: *1:15 PM is 1315*
    READY

15. RESET- *IDcode for school return*

16. Set switch 0 on the 2116 SWITCH REGISTER down.

17. If the system is to be left unused for short periods (a day or a weekend), turn the TAPE READER, digital tape unit, the operator's terminal, and all other terminals off. For best results with the least operator effort, leave all other equipment on and running.

18. If the system is to be unused for long periods (a week or more), push the SYSTEM ON/OFF buttons at the top of the equipment cabinet. This turns off power to all equipment (except the terminals.) Make sure the terminals are off.

19. Lock the cabinet.

20. See the next page for restart/reload procedures.

HOW TO RELOAD THE SYSTEM
(Reload from Drum.)

If you left the system running, just turn the terminals on. No further action is necessary.

If you turned the system off with the SYSTEM ON/OFF switches, press them again. After power is on, check to see if the 2114 is running. (Turn on any student terminal connected to the computer and press the *esc* key. The system responds with a "\" *return linefeed*. If there is no response reload the 2114 and reload the system from magnetic tape (Appendix "A", Procedures 1 to 3).

1. Wait 15 minutes for DRUM MEMORY UNIT to gain operating speed. (The red light on the unit will go out when the drum is up to speed).
2. Press the HALT button on the 2116.
3. Set the 2116 SWITCH REGISTER to 077760_8 (switches 14,13,12,11,10,9,8,7, 6,5,4 up, all others down).
4. Press the LOAD ADDRESS button on the 2116.
5. Set the 2116 LOADER switch to ENABLED.
6. Press PRESET on the 2116.
7. Press RUN on the 2116.
8. When the computer halts, check the T-REGISTER for 102077_8 (lights 15,10, 5,4,3,2,1,0 on). If 102077_8 is not in the T-REGISTER, begin again at step 2. After two unsuccessful tries, turn to Appendix "A", and follow procedures 1 to 3. (Reload from a magnetic tape system copy.)
9. Set the 2116 LOADER switch to PROTECTED.
10. Press RUN on the 2116.
11. DATE? *day of year (1 to 366) / year of century (00 to 99) return*
    Example: Feb. 6, 1971 is 37/71

12. TIME? *four digit time on 24 hour clock return*

    Example: 1:15 PM is: 1315

    READY

13. RESET-*IDcode for school return*

14. Set switch 0 on the 2116 SWITCH REGISTER down.

15. Turn off tape unit and TAPE READER power.

16. Lock the cabinet door.

SECTION V
OCCASIONAL TASKS

Several of the utility routines are run only infrequently in most schools. This section gives instructions and examples of the routines which will be needed occasionally during the school year.

HOW TO CLEAR THE CURRICULUM FILE

The D&P PROGRAM keeps a file of statistics on student performance. This file must be cleared periodically, depending on the school requirements. Be sure to run a Curriculum Report before clearing the curriculum file.

To clear the curriculum file:

1. While logged in under the *IDcode* of the appropriate school, at any student terminal type:
2. GET-$CLEARC *return*
3. RUN *return*
   CLEARC
4. CODE? *type codeword return*
   THIS PROGRAM CLEARS ALL INFORMATION FROM THE CURRICULUM FILE.
   REGULAR OR SPECIAL? *type REGULAR or SPECIAL return*
   THE CURRICULUM FILE FOR THE REGULAR STUDENTS OF *school name* SCHOOL
   HAS BEEN CLEARED.
   DONE
5. If the school has both regular and special students, run CLEARC twice, one to clear the file for regular students, once for special students.

```
GET-$CLEARC
RUN
CLEARC

CODE?HUSH
THIS PROGRAM CLEARS ALL INFORMATION FROM THE CURRICULUM FILE.
REGULAR OR SPECIAL?REGULAR
THE CURRICULUM FILE FOR THE REGULAR STUDENTS OF HILLSDALE SCHOOL
HAS BEEN CLEARED.

DONE


RUN
CLEARC

CODE?HUSH
THIS PROGRAM CLEARS ALL INFORMATION FROM THE CURRICULUM FILE.
REGULAR OR SPECIAL?SPECIAL
THE CURRICULUM FILE FOR THE SPECIAL STUDENTS OF HILLSDALE SCHOOL
HAS BEEN CLEARED.

DONE
```

HOW TO RESET BLOCK COUNTERS

The D&P PROGRAM keeps a record of the number of blocks completely by every student in the D&P PROGRAM. This record will probably have to be reset from time to time, depending on the requirements of each school, for example, at the end of the school year. Run CLASS reports for all classes before resetting block counters.

To reset the block counters:

1. While logged in under the *IDcode* for the appropriate school, type:
2. GET-$CLEARB *return*
3. RUN *return*
   CLEARB
4. CODE? *type codeword return*
   THIS PROGRAM RESETS THE NUMBER OF BLOCKS COMPLETED FOR ALL STUDENTS.
5. DO YOU WANT THIS TO HAPPEN? YES *return*
   NUMBER OF BLOCKS COMPLETED HAS BEEN RESET TO ZERO.
   DONE

```
GET-$CLEARB
RUN
CLEARB

CODE? HUSH
THIS PROGRAM RESETS THE NUMBER OF BLOCKS COMPLETED FOR ALL STUDENTS.
DO YOU WANT THIS TO HAPPEN? YES
NUMBER OF BLOCKS COMPLETED HAS BEEN RESET TO ZERO.

DONE
```

APPENDIX A

STARTUP OF THE SYSTEM FROM A MAGNETIC TAPE SYSTEM COPY

NOTE: The magnetic tape system copy provided by HP contains the D&P PROGRAM routines and files which are shared by all schools on the system. Each school must be assigned an IDcode, password, codeword, and student files, (as described in Section III) after completing the instructions in this appendix.

PROCEDURE 1: MOUNT THE MAGNETIC TAPE SYSTEM COPY (7970 TAPE UNIT)

NOTE: Use Procedure 1A if your system has a 3030 Digital Tape Unit.

The magnetic tape contains a copy of the system, including both the time sharing system programs and the Mathematics Drill and Practice programs.

1. Open the front door,
2. Move the OFF/ON switch to ON.
3. Pull out the release latch on the upper reel hub.
4. Mount the system copy on the upper hub (remove tape from case, taking off any strips holding the end of the tape down; unwind the tape from right side, with the write enable ring side facing the back).
5. Holding system copy reel flat against the hub, push down the latch. This locks the reel in place.
6. If you are making a system copy, make sure the WRITE ENABLE light is on. If the light is not on, insert the plastic write enable ring in the tape reel.
7. Unwind about 3 feet of tape from the system copy. Thread the tape according to the diagram (inside door, near POWER switch). Make sure the tape is always threaded to the left of the guide posts.
8. Wind the tape onto the takeup reel (about 3 turns).
9. Close the front door.
10. Press the LOAD button. When the LOAD light comes on, tape unit is ready for use. If the tape keeps moving for more than 3 or 4 seconds, and the LOAD light is not on, press the RESET button, then press the REWIND button until the LOAD light comes on.
11. Press the 0 (zero) button.
12. Press the ON LINE button.
13. Go to Procedure 2, if you are loading the system.

NOTES: Do not open the door of the magnetic tape unit while the unit is operating on line to the computer. This stops the computer.

Do not turn the digital tape unit power off until the magnetic tape has been removed.

PROCEDURE 1A: MOUNT THE MAGNETIC TAPE SYSTEM COPY (3030 DIGITAL TAPE UNIT)

NOTE: Use Procedure 1 if your system has a 7970 Tape Unit.

The magnetic tape contains a copy of the system, including both the time sharing system programs and the Mathematics Drill and Practice programs.

1. Open the back door of the 3030 DIGITAL TAPE UNIT. Inside, there are two switches located near the bottom of the cabinet. Make sure the DATA ELECT POWER switch is ON, and the TRANSPORT POWER switch is ON.
2. Press the LOCAL button on the front of the magnetic tape drive.
3. Press the CHANGE DENSITY button until the green 800 light comes on.
4. Set the large dial to zero.
5. Pick up the magnetic tape and remove it from its case. Remove any strips which are holding the end of the tape down.
6. Slide the front panel door down.
7. Turn the right drive hub all the way to the left.
8. Using both hands mount the magnetic tape on the right drive wheel.
9. Turn drive wheel hub all the way to the right; this holds the tape securely in position.
10. If you are making a system copy, make sure the WRITE ENABLE light is on. If the light is not on, insert the plastic write enable ring in the tape reel.
11. Push the center switch down to the BRAKES position and hold it there with your left hand. Thread tape around (to the right) of the right roller, above the right vacuum channel, and through the tape track on the middle panel, above the left vacuum channel, and around (to the left) of the left roller.
12. With the BRAKES switch down wind about 8 to 10 inches of the tape over the take-up reel.
13. Go to Procedure 2 if you are loading the system.

PROCEDURE 2: LOAD AND START THE 2114 COMPUTER

NOTE: Check to see if the 2114 is running: press the esc key on any student terminal connected to the system. If the response is "\" return linefeed the 2114 is running, and Procedure 2 may be skipped.

1. Open the 2114 front panel and check that the CONSOLE LOCK Switch is set to NORMAL.
2. Press the HALT button on both the 2114 and 2116.
3. Press PRESET on the 2116.
4. Insert the 2000B TSB 2114 System tape into the TAPE READER (printed side of tape up, arrows pointing to the right; press LOAD first).
5. Press the READ button on the TAPE READER. (Power must be on.)
6. Set the 2116 SWITCH REGISTER to 077700_8 (switches 14,13,12,11,10,9,8,7, 6 up -- all others down).
7. Press LOAD ADDRESS on the 2116.
8. Set the 2116 LOADER switch to ENABLED.
9. Press RUN on the 2116. Part of the tape is read by the computer.
10. Check the T-REGISTER for 102077_8 (lights 15,10,5,4,3,2,1,0 on).

NOTE: If the computer halts at any number other than 102077_8, begin again at step 2. If the tape does not load after several tries, call your nearest HP Sales and Service Office.

11. Set the 2116 LOADER switch to PROTECTED.
12. Set SWITCH REGISTER to 000002_8 (switch 1 on the 2116 up, all others down).
13. Press LOAD ADDRESS and RUN on the 2116.
14. Press CLEAR REGISTER on the 2114.
15. Press LOAD and PRESET on the 2114 at the same time. The 2114 tape should be read through the photoreader and the 2114 HALT light comes on, with 102077_8 in the MEMORY DATA register of the 2114 (lights 15,10,5,4,3,2,1,0 on).

NOTE: If the computer halts at any number other than 102077_8, begin again at step 2. If the tape does not load after several tries, call your nearest HP Sales and Service Office.

16. Press HALT on the 2116.

17. Press RUN on the 2114.

18. Press the *esc* key on any student terminal that is connected to the 2114. If the terminal does not respond with "\" and a *return linefeed*, begin again at step 1.

19. Set the CONSOLE LOCK switch inside the front panel of the 2114 to LOCK so that buttons on the front panel are disabled. This keeps unauthorized persons from tampering with the system.

20. Go to Procedure 3.

PROCEDURE 3: LOAD THE LOADER TAPE AND SYSTEM COPY

1. Press LOAD on the TAPE READER, insert the 2000B TSB Loader tape, printed side up, arrows pointing to the right, and press the READ button. (POWER must be on.)
2. Set the 2116 SWITCH REGISTER to 077700_8 (switches 14,13,12,11,10,9,8,7,6 up -- all others down).
3. Press LOAD ADDRESS on the 2116.
4. Set the 2116 LOADER switch to ENABLED.
5. Press PRESET on the 2116.
6. Press RUN on the 2116 (tape is read).
7. The computer should halt with the T-REGISTER at 102077_8 (lights 15,10,5, 4,3,2,1,0 on).

   NOTE: If the computer halts at any number other than 102077_8, begin again at step 2. If the tape does not load after several tries, call your nearest HP Sales and Service Office.

8. Set the 2116 LOADER switch to PROTECTED.
9. Make sure the magnetic tape system copy has been mounted (Procedure 1), and is ON LINE or in AUTO.
10. Make sure operator's terminal is ON LINE, and switch 0 on the 2116 SWITCH REGISTER is down.
11. Set the 2116 SWITCH REGISTER to 002000_8 (switch 10 up, all others down).
12. Press LOAD ADDRESS on the 2116.
13. Press RUN on the 2116.
14. LIBRARY? YES *return*
15. MAGTAPE SELECT CODE AND TYPE? 17, *7970 or 3030* *return*
16. DISC MODIFICATIONS? NO *return*

PROCEDURE 3: (cont.)

GIVE LOCK, UNLOCK, OR LOAD COMMAND.

17. LOAD *return*

18. DISC OPERATING SYSTEM PRESENT? NO *return* (Tape is read and rewinds.)

19. DATE? *day of year (1 to 366) / year of century (00 to 99) return*

    Example: ***Feb. 6, 1971 is 37/71***

20. TIME? *four digit time on 24 hour clock return*

    Example: ***1:15 PM is 1315***

    READY

21. Remove the system copy from the Tape Unit.

22. Set switch 0 on the 2116 SWITCH REGISTER up.

23. Turn off the POWER switches on the Tape Unit and TAPE READER.

24. Lock the cabinet.

APPENDIX B

DAILY TASKS CHECKLIST-SLEEP,RESET,AND RESTART

1. Turn on tape unit and operator's terminal.
2. Mount a magnetic tape. *(Remember to rotate tapes - see notes in Section II.)*
3. Put tape unit ON LINE (Auto).
4. Make sure switch 0 on the 2116 SWITCH REGISTER is down.
5. Give ROSTER command on operator's terminal. (Notify remote users, if any.)
6. Give the SLEEP command on operator's terminal. (Magnetic tape system copy is made, tape rewinds, and computer (2116) halts.) VERIFY the copy.
7. Move the 2116 LOADER switch to ENABLED.
8. (2116) Load Address 077760_8 (switches 14,13,12,11,10,9,8,7,6,5,4 up, all others down, then press LOAD ADDRESS).
9. Press (2116) PRESET then RUN.
10. After (2116) halts, check T-REGISTER for 102077_8 (lights 15,10,5,4,3,2, 1,0 on).
11. Move 2116 LOADER switch to PROTECTED.
12. Press RUN.
13. Give responses at the operator's terminal.
14. RESET time clocks for school *IDcode*.
    (RESET-IDcode return)
15. Put switch 0 on the 2116 SWITCH REGISTER up.
16. Remove magnetic tape system copy, and label with date and time it was taken.
17. Turn tape unit and TAPE READER power off.
18. Lock cabinet.

APPENDIX C

OPENING AND EXPANDING FILES

The school record files (1-10) contain school and student information. When all the numbered files are opened with 128 records in each, a total of 1260 students can use the PROGRAM.

If less than 1261 students are using the program, it may be desirable to open some of the files with less than 128 records. Doing this saves space on the system.

To expand files for accommodating more students, use the chart below and the expansion instructions given on the next page.

This chart shows how many records to open in each file, and the number of students which can use the program. Note that files 1 through 10 have only two sizes: either 128 records or 1 record.

When the Maximum Number of Students Is:	The Student ID Number Range Is:	Files With These Names Have 128 Records:	Files With These Names Have 1 Record:
109	1000-1108	1	2,3,4,5,6,7,8,9,10
237	1000-1236	1,2	3,4,5,6,7,8,9,10
365	1000-1364	1,2,3	4,5,6,7,8,9,10
493	1000-1492	1,2,3,4	5,6,7,8,9,10
621	1000-1620	1,2,3,4,5	6,7,8,9,10
749	1000-1748	1,2,3,4,5,6	7,8,9,10
877	1000-1876	1,2,3,4,5,6,7	8,9,10
1005	1000-2004	1,2,3,4,5,6,7,8	9,10
1133	1000-2132	1,2,3,4,5,6,7,8,9	10
1261	1000-2260	1,2,3,4,5,6,7,8,9,10	None

The general form for opening files is (while logged in under the School *IDcode* at any student terminal):

OPEN— *file name* , *number of records* *return*

Thus, for a school with a maximum of 365 students, the 10 numbered files would be opened:

OPEN-1,128 *return*
OPEN-2,128 *return*
OPEN-3,128 *return*
OPEN-4,1 *return*
OPEN-5,1 *return*
OPEN-6,1 *return*
OPEN-7,1 *return*
OPEN-8,1 *return*
OPEN-9,1 *return*
OPEN-10,1 *return*

(File C is always opened with 84 records.)

How to Expand Files

To check file sizes, log in under the school *IDcode* and type:

CATALOG *return*

The computer responds with a listing of all programs and files, and the file sizes:

1	F8192	2	F8192	3	F8192	4	F8192	5	F8192
6	F8192	7	F8192	8	F8192	9	F64	10	F64
C	F5376								

The "F" indicates a file: the files with a size of 8192 contain 128 records (Files 1-8 above.) Those with a size of 64 have only 1 record. Files may not be expanded while the PROGRAM is running.

NOTE: The CLEARS routine must be run after opening or expanding files (Section III).

To expand the maximum number of students in a school, use the KILL command to delete the files which must be changed from 1 record to 128 records. For example, to expand from 365 students to 493 students:

KILL-4 *return*
OPEN-4,128 *return*

Only KILL files which have one record in them. Killing files with 128 records results in the loss of student records.

APPENDIX D

HOW TO OBTAIN D & P PROGRAM REPORTS

NOTE: The Proctor's Handbook contains samples of these reports.

Log in under the school IDcode before following the instructions below.

To get a class report:

GET-$CLASS *return*
RUN *return*

To get a curriculum report:

GET-$CURRIC *return*
RUN *return*

To get a daily report:

GET-$DAILY *return*
RUN *return*

To get a pupil report:

GET-$PUPIL *return*
RUN *return*

To get a class listing report:

GET-$ROSTER *return*
RUN *return*

To get a listing of any lesson in the PROGRAM:

GET-$TEST *return*
RUN *return*

APPENDIX E
FORM FOR RECORDING REGISTERS

If the system fails, note down the contents of <u>all</u> registers - both on the 2114 and the 2116 before attempting to restart the system. If you understand octal (base 8) numbers, simply write down the name of the register, and its contents.

If you are not familiar with octal numbers, make copies of the form below, and fill in the circles for the register lights that are on when the system fails. Also circle the names of the lighted indicator lights (such as PARITY)

CAUTION: If either of the computers show PARITY or PARITY HALT, do not attempt to restart.

MEMORY DATA

0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0

MEMORY ADDRESS

2114

0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
15	14 13 12	11 10 9	8 7 6	5 4 3	2 1 0

EXTENDED PRESET OVERFLOW FETCH RUN INDIRECT HALT EXECUTE PARITY

T-REGISTER MEMORY DATA

0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0

P REGISTER PROGRAM COUNTER

0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0

M-REGISTER MEMORY ADDRESS

2116

0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0

A-REGISTER ACCUMULATOR

0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0

B-REGISTER ACCUMULATOR

0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
15	14 13 12	11 10 9	8 7 6	5 4 3	2 1 0

EXTENDED OVERFLOW FETCH INDIRECT EXECUTE PARITY HALT RUN HALT

APPENDIX F

SAMPLE LOGBOOK FORM

IDCode	Password	Time Allotted	Storage Allotted	Person to Contact	Phone Number For Contact
AØØØ		65535	65535	System Operator	

APPENDIX G

GLOSSARY

Term	Meaning
Acoustic Coupler	A device used to connect a terminal and a computer that are more than one mile apart.
BASIC Language	A language used to write programs for the time-sharing computer system. BASIC is an acronym for Beginners All-purpose Symbolic Instruction Code. BASIC is a combination of simple English and algebra.
Code Word	A pre-arranged combination of letters and/or numbers that must be entered on the terminal before the program, files, or student records can be used.
Command	An instruction used to run, store, change, or delete programs; also used by the operator to create files, add and change IDcodes and passwords, and to make system copies on magnetic tape.
Computer	An electronic device that accepts, processes, and returns information according to a program.
Core Memory	The area in a computer used to store programs, the information processed by programs, and the results of the processing.
Data Set	A device used to connect a terminal and a computer that are more than one mile apart.

Term	Meaning
Diagnostic Message	A message printed at the terminal by the program indicating the probable cause of an error in a program or operating procedure.
Drum or Disc	Electronic devices for storing large quantities of information outside of a computer.
Error Message	The message ERROR printed at the terminal by the program indicating that the line previously typed by the programmer is not acceptable to the program.
File	An area of core memory used for storing information or programs.
Fixed Pacing	The technique of limiting the number of problems a student can be given during one terminal session.
Function Key	All keys on the terminal keyboard used to produce special program functions.
Halt	Temporarily stopping processing indicated by the HALT button light on the front panel of the computer. A halt can be caused by pressing the HALT button or by the computer or program.
IDcode	A unique identification number assigned by the time-sharing system operator necessary for log-in to the time-sharing system. An IDcode consists of a letter followed by a three digit number such as A001. (See also Password.)
Input	Any information or commands to the computer or program typed from a terminal.

Term	Meaning
Interaction	The process of exchanging responses between two parties, the student and the program, through a terminal. A request from one causes a response by the other in turn generating another request - response cycle.
Log-in	The procedures used to connect the terminals to the computer each day.
Log-out	The procedures used to disconnect the terminals and computer each day.
Magnetic Tape	A reel of plastic tape (similar to tape recorder tape) used to store copies of the program and information contained on the computer system for future use. Information is transferred to and from magnetic tape by the magnetic tape drive.
Magnetic Tape Drive	An electronic device for putting information and programs into a computer. A magnetic tape drive also is used for recording information and programs stored in core memory on magnetic tape for future use.
Memory	The area in a computer used to store programs, the information to be processed by the programs, and the results of processing.
Non-printing Keys	All keys on the terminal keyboard that do not print a visible character on the terminal paper.
Operator's Terminal	See terminal
Paper Tape	Heavy duty paper on which programs or information is recorded as a series of coded holes punched into the paper.

Term	Meaning
Paper Tape Reader	A device attached to a terminal that transfers information stored as a series of coded holes in the paper to a computer.
Password	A word typed after the IDcode necessary to log-in to the time-sharing system. The time-sharing system operator assigns and changes the password so the password is known only to the time-sharing system operator and the person assigned it.
Printing Keys	All keys on the terminal keyboard that print a character on the terminal paper.
Privacy	Assurance that unauthorized people cannot access the programs, files, or student records stored in the computer system. This is accomplished by changeable IDcodes, passwords, and code words.
Processing	Accepting, storing, changing, or delivering information according to a program.
Program	A sequence of instructions to a computer telling it how to perform a certain task.
PROGRAM Shutdown	A procedure performed at the close of a school day consisting of copying the D&P PROGRAM files, routines and records. PROGRAM shutdown occurs after all students using the PROGRAM that day have been signed-off.
Push Button	The switches on the front panel of an HP 2116 computer that operate by pushing.
Record	A record is a fixed length sub-division of a file.

Term	Meaning
Register	A storage space in the computer used in transferring information to and from the computer memory. Register contents sometimes are displayed on the front panel of the computer for reference. A row of 16 lights on the front panel of the computer used when loading and monitoring the computer.
Return Key	A function key that returns the terminal ribbon and type face to the beginning of a line, signaling the program that the last response or entry is completed.
Routine	A particular set of computer instructions used to cause the performance of one of the program's several functions. Routines are used to generate problems, update student records, form reports, and maintain files.
Routines (By name and function)	
	$CHANGE Changes the contents of a student record.
	$CLASS Obtains a class progress report.
	$CLEARB Sets to zero all student record block counters.
	$CLEARC Prepares the curriculum files for each school using the system.
	$CLEARS Prepares student record files for program operation or to prepare student record files for operation when enough students have been added to or deleted from the program so that reorganizing the files is necessary.
	$CODE Loads the program code word or to change the program code word.

Term		Meaning
Routines (cont.)	$CURRIC	Obtains the Curriculum Report.
	$DAILY	Obtains the Daily Report.
	$DATE	Enters the date for the program at the beginning of each school day.
	$DELETE	Deletes a student's record from the student record file.
	$ID	Obtains the next available student ID number.
	$NEW	Enters a student into the program.
	$PUPIL	Obtains a progress report for an individual student or for an entire class.
	$ROSTER	Obtains a list of students using the program.
	$SCHOOL	Places the name of each school using the system into the program, or to change the name of a school already in the program.
	$START	Prepares the terminals for student sign-in.
	$TEACHER	Loads the names of the teachers into the school's files and student records; or to change the name of a teacher already in the records.
	$TEST	Obtains a lesson for any year, block, and level of difficulty for demonstration purposes.

Term	Meaning
School	The name of the physical school or an administrative name for one group of students using the system (such as night school or summer school).
Self Pacing	Not placing a limit on the number of lessons a student may take during one terminal session. When a student is self pacing he is limited only by the length of his terminal session.
Storage	Core memory, disc, drum, magnetic tape, or paper tape on which information is kept.
Student ID (Identification)	The information typed in by a student at a terminal at the start of a terminal session. Student identification consists of the student's unique ID number, and his first name.
Student Record	A record of the student's progress through the program including administrative and academic information.
Student Response	The information typed by the student in response to a program request. The response can be the student's ID number, first name, yes or no, or the answer to a problem. Every student response is completed by striking the Return key.
Student Sign-in	The procedure used by a student at the beginning of a terminal session that identifies him to the program.
Switch Register	Sixteen numbered switches on the front panel of the computer, used in loading programs or information into the computer. (See also Register.)

Term	Meaning
System	A collection of electronic devices including the computer, discs, drums, terminals, and the programs which control these devices.
Teacher Identification	The sur-name and unique number that identifies each teacher whose students are using the program.
Terminals	A terminal is a typewriter-like device used by students to communicate with the program. The terminal prints information transmitted by the computer and allows the student to transmit (by typing) information to the computer. A terminal also is used to transmit operating instructions and commands to the computer.
Time Interval	The time assigned each student for drill and practice starting at student sign-in each day.
Time-sharing	Computer programming that allows many people to have simultaneous access to a single computer system. The computer processes the information sent by each person so rapidly that it seems to each individual that he is the only person using the system.
Touch Button	The switches on the front panel of an HP 2114 computer that are operated by touch rather than by pushing or flipping up or down.